



Anniston Army Depot



**Sustainability:
Asking Everyone to Plan
for the Future**

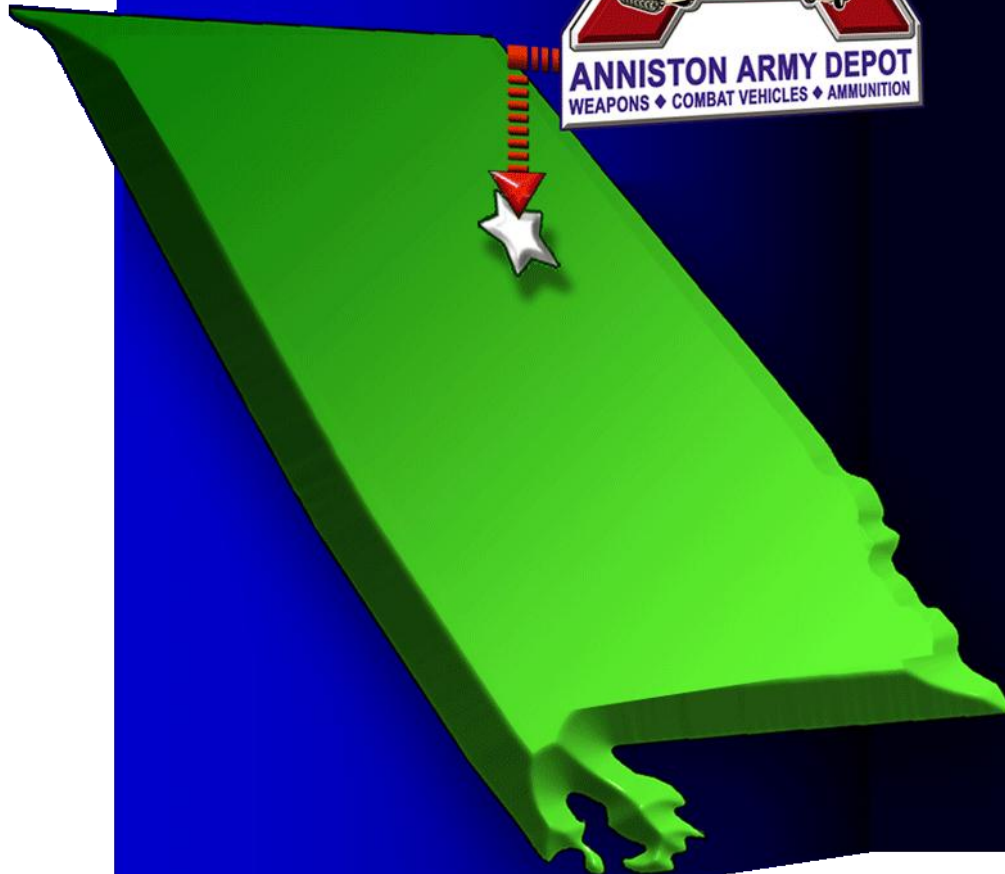
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Installation Description



- ◆ 2,332 Buildings/Structures
- ◆ 244 Miles of Roadway
- ◆ 98 Miles of Fencing
- ◆ 37 Miles of Railroad
- ◆ 15,320 Acres
- ◆ \$2.56 Billion Plant Replacement Value
- ◆ \$1.2B FY09 Depot Budget
- ◆ \$700M Average Annual Tenant & Contractor Budget
- ◆ 6,900 Total Employees
- ◆ 4,368 Depot Employees



Installation Description (cont'd)

► **MISSION**

- To provide superior sustainment support to the US Armed Forces and our Allies

► **VISION**

- To be the premier DOD Center for Industrial and Technical Excellence for current and future combat systems by being uniquely vital, technically superior, and unconditionally responsive worldwide



M1 Abrams Tank

M88 Recovery Vehicle

Combat Vehicles



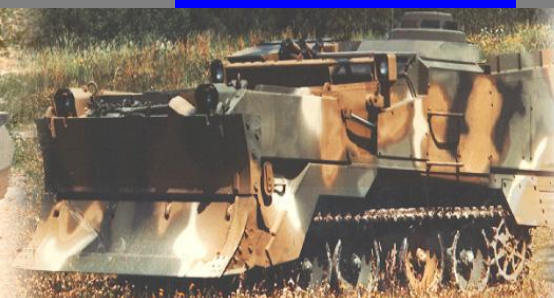
STRYKER



FOX Vehicle



M113 Armored Personnel Carrier



M9 Armored Combat Earthmover



M60 Armored Vehicle Bridge Launcher



Department of Defense Small Arms Facility



**M16
RIFLE**



**M9
PISTOL**



**M249 SQUAD
AUTOMATIC
WEAPON**



**M2
MACHINE
GUN**



**M230
CHAIN
GUN**



MORTAR



**MK19
GRENADE
LAUNCHER**

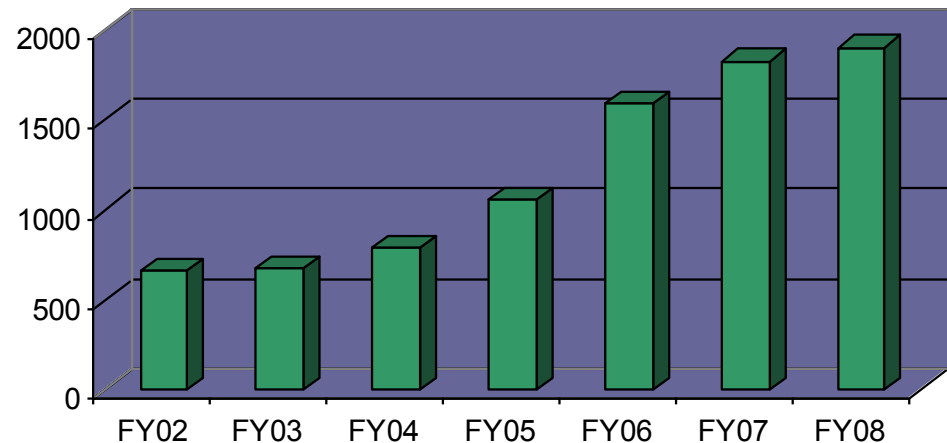


ANAD's Sustainability Culture



- ▶ During this decade, Anniston Army Depot's (ANAD's) workload continually increased as human, environmental, and business assets became more constrained.
- ▶ To adapt to the increased workload, ANAD achieved the following certifications:
 - ▶ ISO 9001:2000
 - ▶ OHSAS 18001:1999
 - ▶ ISO 14001:2004
- ▶ These programs do not holistically address long term strategic planning.

Figure 1: Combat Vehicle Production





ANAD's Triple Bottom Line



- ▶ Depot leadership recognizes the need to:
 - ▶ Create a sustainability culture that balances long term mission viability with changing environmental, community, and business resources.
 - ▶ Implement a long range planning process to help ANAD adjust to a world of limited resources.
- ▶ The —~~triple~~ bottom line” was incorporated into ANAD’s strategic planning process.
 - ▶ Triple Bottom Line: —Support our mission, strengthen our community, and successfully manage our environmental impacts.”
 - ▶ Fosters a widespread sustainability ethic.



ANAD's Sustainability Approach



- ▶ **Approach:**
 - ▶ Conduct a series of stakeholder workshops to set 25-year Sustainability Goals that proactively address resource constraints to create a sustainability culture at ANAD

Table 1 ANAD Steps in Sustainability Planning

Pre-Planning	Educate staff about sustainable principles, evaluate mission and existing strategic goals and initiatives, frame challenges, and identify initial teams
Workshop I	Identify challenge statements and refine teams for cross-functional participation
Workshop II	Set goals that align with existing strategic plans and charter teams
Workshop(s) III	Teams set objectives, targets, and plans; identify resources; and set schedules



Pre-Planning Meeting

- ▶ ANAD's environmental office hosted a Sustainability Pre-Planning Meeting
 - ▶ **Attendees included:**
 - ▶ Headquarters, Department of the Army (HQDA)
 - ▶ Installation Management Command/Southeast (IMCOM-SE)
 - ▶ Army Materiel Command (AMC)
 - ▶ A variety of depot directorates
 - ▶ **Discussions included:**
 - ▶ Applying sustainability concepts to ANAD industrial & production operations
 - ▶ Setting sustainability planning themes
 - ▶ Industrial Team - Production of combat, tactical, and ground support vehicles and armaments, including R&D and fielding
 - ▶ Competitive Edge Team - Focus on workload management, financial and human resource management, development, and community relations
 - ▶ Infrastructure Team - Equipment, facilities, transportation, and utility management
 - ▶ Procurement and Contracting Team - The procurement of supplies and services



Workshop I



- ▶ In June 2007, ANAD held its first Sustainability workshop.
- ▶ Personnel from 18 depot and tenant organizations and three Army agencies participated.
 - ▶ Participants worked in four teams based on the planning themes
- ▶ Purpose of Workshop I was for the cross-functional participants to:
 - ▶ Learn about the triple bottom line and sustainability
 - ▶ Promote sustainable thinking in their —home” organizations
 - ▶ Learn to identify impacts to sustainability in ANAD’s current mission, operations and processes, practices
 - ▶ Draft challenge statements that capture the specific challenges to ANAD becoming a sustainable industrial installation



Workshop II

- ▶ This workshop was opened up to additional staff and stakeholders, including:

- ▶ Environmental regulators
- ▶ County commissioners
- ▶ Community sustainability proponents
- ▶ Representatives from partner businesses



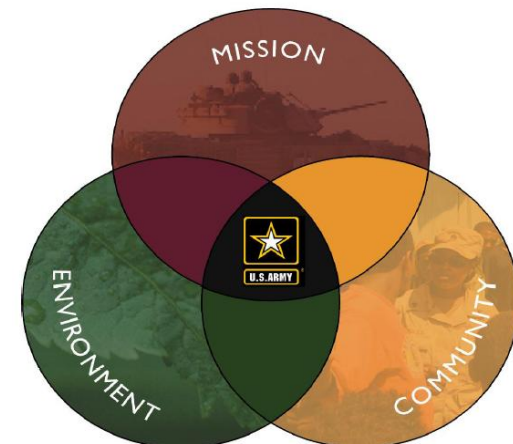
Picture 1: Workshop II participants, left to right, Glenn Mellon, Len Hearn and Shenell Curry Billips (all of ANAD).

- ▶ **Teams:**
 - ▶ Reviewed the challenges identified in Workshop I
 - ▶ Discussed ways to minimize, eliminate or work beyond them
 - ▶ Talked about a variety of ways to achieve sustainability
 - ▶ Developed 25-year Strategic Sustainable Goals
- ▶ Toward the end of the conference, the teams sent their goals to the Command Staff for review and approval.
 - ▶ Ten goals were approved for inclusion in the ANAD Strategic Plan.



Workshop III

- ▶ May 2008: Workshop III participants developed the specific objectives, targets, and action plans
 - ▶ Included responsibilities, timelines, and resource requirements necessary to meet the 25-year strategic goals identified and endorsed by the Commander in Workshop II
- ▶ Detailed action plans through 2015 were created to:
 - ▶ Match with current strategic planning at ANAD, and
 - ▶ Allow for future planning adjustments throughout the 25-year Sustainability Plan





Example Sustainability Goals

► Goal: Generate Zero Waste

► Metric(s):

- Waste-to-Energy (lbs waste to MMBTU)
- Improve process equipment (i.e. reduce lbs air emissions & hazardous waste generated)
- Lean (identification & elimination of waste)
- Prime vendor / Just-in-time acquisition & delivery
- Flexible buildings & warehousing (reduction of C&D, increase capacity)
 - Reduction of pollutants in stormwater
 - Reduction of usage of blast media
- Quantity & cost of waste disposed (solid, hazardous)
- Increase secondary materials captured/recovered to market

► Timeframe: 2033

► Proponent Organization: Depot Operations Office



Example Sustainability Goals

- ▶ **Goal: 100% Self Sufficient Utility Production (produced on depot or purchased within) over 2010 Baseline**
 - ▶ Includes water & energy
- ▶ **Metric(s):**
 - ▶ Zero MMBTUs produced outside the depot or community by 2033
 - ▶ 50% of water used on the depot will be reclaimed water
 - ▶ Comprehensive metering of all utilities by 2010
- ▶ **Timeframe: 2033**
- ▶ **Proponent Organization: DPW**



Beyond the Workshops

- ▶ The final 25-year Sustainability Goals will be incorporated into ANAD's Strategic Plan.
 - ▶ As an integrated part of the Strategic Plan, sustainability updates will be briefed during the ANAD Commander's Off-sites, at the same time the Strategic Plan is reviewed.
 - ▶ This usually occurs on a quarterly basis.
- ▶ As a result of ANAD's high-profile strategy for creating Sustainability Goals, there is a lot of internal and external stakeholder energy and excitement associated with achieving the Sustainability goals.
- ▶ The workshops enabled ANAD to create a sustainability ethic that did not exist previously.



Strengthens Army Operations & Minimizes Impacts & Total Ownership Costs

- ▶ Throughout 2007 and 2008, ANAD personnel began implementing Sustainability before the new ANAD Sustainability goals were developed and incorporated into the Strategic Plan.
- ▶ To help achieve ANAD's overarching Strategic Sustainability Goals, staff implemented several projects that assist with the triple bottom line—helping the environment, mission, and community.



Construction & Demolition Recovery

- ▶ ANAD typically disposes of approximately 2,000,000 pounds of C&D waste annually with a cost of more than \$100,000.
- ▶ ANAD salvaged waste generated during two renovation and construction projects:
 - ▶ Renovated about 8,500 square feet (ft²) of office space in the Headquarters Building
 - ▶ Replaced 72,398 ft² of roof and exterior panels at the Vehicle Disassembly/Assembly building



*Metal Studs and Framework
Awaiting Transport to ANAD's
Recycling Center*

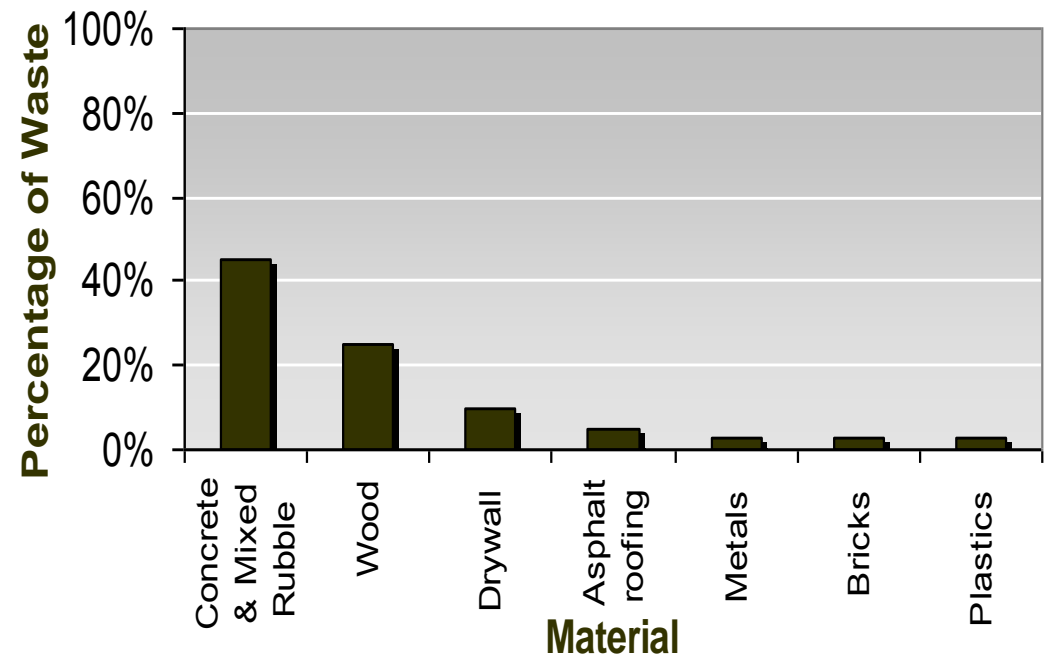


Construction & Demolition Recovery

- ▶ ANAD set aside over 35,000 pounds of useful debris to be processed at the onsite Recycling Center, including:

- ▶ Metal Framing
- ▶ Wood Studs and Fiberglass Insulation
- ▶ Siding
- ▶ Roofing Material
- ▶ Windows and Doors

Consituents of Typical C&D Project





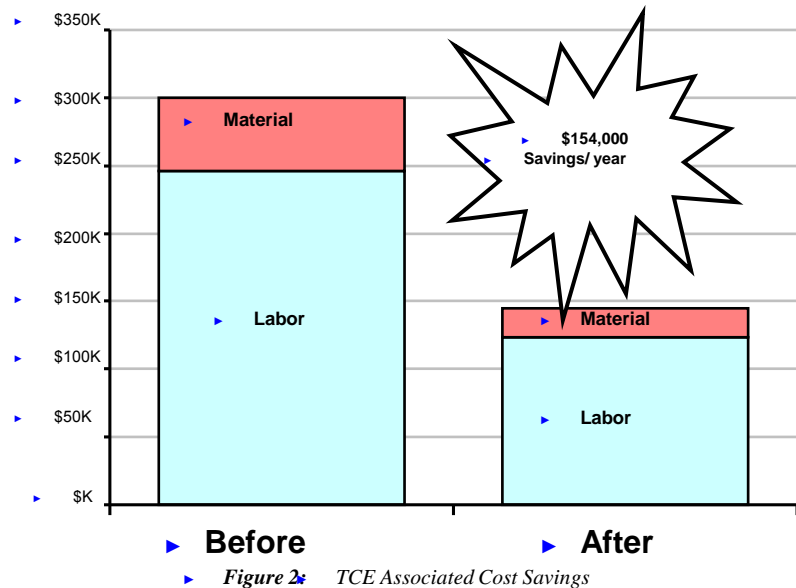
Spent Bullet Program

- ▶ ANAD began a new program to recycle spent bullets from their small arms test range
 - ▶ ANAD is the primary small arms (5.56 caliber or lower) rebuild center within DOD
 - ▶ In the past, approximately 50,000 lbs of actual spent bullets left the depot annually as hazardous waste (\$0.88/lb)
- ▶ ANAD staff researched the potential for recycling spent bullets
 - ▶ Identified Illinois-based Total Metal Recycling
 - ▶ Metals recovered include lead, copper, zinc, and nickel
- ▶ FY2008 benefits
 - ▶ Recycled 54,820 lbs of spent bullet waste
 - ▶ Earned \$9,900 from recycling spent bullets
 - ▶ Saved \$48,000 in disposal costs



Minimizing ANAD's TCE Usage

- ▶ ANAD uses chemical vats of trichloroethylene (TCE) to quickly clean dirty components of used tracked vehicles.
 - ▶ This process led to 50 tons of TCE emitted to the air annually.
- ▶ Depot engineers re-routed as many parts as possible to more environmentally friendly processes.
 - ▶ ANAD was able to reduce TCE emissions by 30 tons per year.



- ▶ Material and labor reductions resulted in a cost savings of:
 - ▶ Over \$75,000 for the first year, and
 - ▶ Estimated **\$154,000 per year** savings in subsequent years



Green Buildings



- ▶ Newly constructed buildings at ANAD must meet Leadership in Energy and Environmental Design (LEED) standards.
 - ▶ Previously planned new industrial facilities are using flexible and life-cycle design standards.
- ▶ New industrial equipment will be greener.
 - ▶ Example: Replacing chemical vats with molten salt baths.
- ▶ Older ANAD buildings are being retrofitted to take advantage of energy conservation technology
 - ▶ Example: Geothermal heat pumps in Contracting Office.
- ▶ New Risk Management Office will qualify as LEED Silver status

Sustainable Features of the new Risk Management Office

85% Recycled GreenFiber insulation
30% Recycled Steel
Recycled Carpet
Skylights to reduce the need for artificial light
Occupancy sensors
Formaldehyde-free cubicle walls
Automatic flush valves
98% Recycled and moveable cubicles
50% recycled (pre- and post-consumer) work stations
17 Seasonal Energy Efficiency Ratio (SEER) HVAC
Low Volatile Organic Compound (VOC) Paints



Water Reuse



- ▶ ANAD's Water Reuse Program is based on the American Institute of Chemical Engineers (AIChE) — "The Systematic Approach to Water Reuse" implementation plan.
- ▶ The plan follows the basic plan-do-check-act model found within the ISO systems implemented at ANAD.
- ▶ ANAD formed a cross-functional team to provide oversight and serve as the decision making body for the program.
- ▶ The goal of the program is to identify and implement opportunities to minimize depot water usage and reduce the quantity of water purchased from the City of Anniston.
- ▶ Preliminary Findings:
 - ▶ Re-use NCCW = saving 250,000 gpd (~25% reduction in purchased water) and \$75,000 annually



Energy Conservation



- ▶ To help reduce energy consumption ANAD has converted:
 - ▶ 2.3 million ft² of floor space to T-5 fluorescent lighting
 - ▶ 6,108,044 kilowatts per hour (kWh) savings
 - ▶ \$274,682 annual cost reduction
 - ▶ Expected Return on Investment (ROI) in 9.42 years
 - ▶ 450,000 ft² of high bay buildings to infrared heat
 - ▶ 25,442 MMBTU savings
 - ▶ \$264,789 annual cost reduction
 - ▶ Expected to provide savings for 20 years with ROI of 8.71 years
- ▶ ANAD made major improvements to the compressed air system.
 - ▶ 1,478,775 kWh savings
 - ▶ \$59,151 annual cost savings
 - ▶ ROI of 4.5 years
- ▶ The Depot Operations Office established an Alternative Fuels Tiger Team with representation from various depot organizations.



Driving Innovation



- ▶ The overwhelming success of ANAD's Sustainability Planning is the new ethic it has created.
 - ▶ Employees are excited about Sustainability and are jumping ahead of the Strategic Goals to start their contribution.
- ▶ In addition to in-progress projects above:
 - ▶ Planners are thinking about life cycle costs
 - ▶ Public Works is considering putting in a wind farm, and
 - ▶ The Environmental Office is researching waste-to-fuel options
- ▶ Every single one of these projects represents a new way of doing business at ANAD.
- ▶ The depot has internalized the message that business as usual is no longer enough and that everyone needs to contribute to improving ANAD's triple bottom line.
- ▶ With a similar plan to energize staff, any other military installation or industrial facility could implement Sustainability.



For more information



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